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BUREAU OF MINES MINERALS YEARBOOK

The Mineral Industry of Nevada

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This publication is a chapter from the current Bureau of Mines Minerals Yearbook, comprising *Volume I, Metals and Minerals; Volume II, Area Reports: Domestic; Volume III, Area Reports: International*. The separate volumes of the Yearbook are sold by the Superintendent of Documents, Washington, D.C. 20402.

The Mineral Industry of Nevada

This chapter has been prepared under a Memorandum of Understanding between the Bureau of Mines, U.S. Department of the Interior, and the Nevada Bureau of Mines and Geology for collecting information on all nonfuel minerals.

By Fred V. Carrillo¹ and John H. Schilling²

The value of Nevada's nonfuel mineral production in 1984 was \$616 million, a slight increase from that recorded in 1983. Nevada ranked 11th nationally in the value of nonfuel mineral production. Gold continued to be the leading commodity produced in terms of value, accounting for \$360 million or 58% of the total nonfuel mineral value produced in the State. The 7% decline

in value of gold production was the result of lower gold prices in 1984. Total production of 997,508 troy ounces was a 9% increase over that in 1983.

The State continued to lead the Nation in the production of barite and gold and was the sole producer of mined magnesite and mercury.

Table 1.—Nonfuel mineral production in Nevada¹

Mineral	1983		1984	
	Quantity	Value (thousands)	Quantity	Value (thousands)
Barite ----- thousand short tons..	663	\$21,736	615	\$14,924
Clays ----- do.....	58	2,348	*20	*1,191
Gem stones ----- NA	NA	1,200	NA	1,300
Gold (recoverable content of ores, etc.)..	*914,631	*387,761	997,508	359,759
Gypsum ----- thousand short tons..	998	7,896	1,192	8,860
Lead (recoverable content of ores, etc.)..	14	7	W	W
Mercury ----- 76-pound flasks..	25,070	W	19,048	W
Sand and gravel: -----				
Construction ----- thousand short tons..	*7,500	*16,200	8,202	20,505
Industrial ----- do.....	W	W	488	W
Silver (recoverable content of ores, etc.)..	5,164	59,073	6,477	52,727
Stone (crushed) ----- thousand short tons..	1,269	5,358	*1,100	*4,700
Combined value of cement (portland), clays (fuller's earth and kaolin, 1984), copper, diatomite, fluorspar, iron ore, lime, lithium, magnesite, molybdenum, perlite, salt, tungsten ore and concentrate (1984), and values indicated by symbol W -----	XX	*111,178	XX	151,787
Total -----	XX	*612,757	XX	615,753

*Estimated. ¹Revised. NA Not available. W Withheld to avoid disclosing company proprietary data; included with "Combined value" figure. XX Not applicable.
²Production as measured by mine shipments, sales, or marketable production (including consumption by producers).
³Excludes fuller's earth and kaolin; value included with "Combined value" figure.

Table 2.—Value of nonfuel mineral production in Nevada, by county¹

County	(Thousands)		Minerals produced in 1983 in order of value
	1982	1983	
Carson City	\$36	(²)	
Churchill	1,080	W	Diatomite, salt, iron ore, silver, gold, lead.
Clark	27,855	\$23,853	Lime, sand and gravel (industrial), gypsum, stone (crushed).
Douglas	669	(²)	
Elko	97,748	W	Gold, barite, silver, lead, copper.
Esmeralda	27,478	43,405	Lithium, silver, gold, diatomite, clays.
Eureka	59,254	W	Gold, barite, iron ore, stone (crushed), mercury, silver.
Humboldt	33,899	W	Gold, mercury, stone (crushed), clays.
Lander	71,141	77,937	Gold, barite, copper, silver, lead.
Lincoln	8,230	W	Gold, silver, perlite.
Lyon	20,220	W	Cement, stone (crushed), gypsum, diatomite, gold, silver.
Mineral	26,571	47,909	Gold, silver, lead, copper.
Nye	91,692	61,083	Gold, clays, molybdenum, barite, magnetite, silver, copper, stone (crushed), fluor spar.
Perahing	23,096	W	Diatomite, gypsum, silver, gold, perlite, iron ore, copper, lead.
Storey	5,870	16,068	Diatomite, silver, gold, stone (crushed).
Washoe	W	W	Clays, gold, silver.
White Pine	W	W	Gold, silver.
Undistributed ³	32,533	326,270	
Sand and gravel (construction)	XX	16,200	
Stone (crushed)	*4,500	XX	
Total ⁴	532,463	612,757	

²Estimated. W Withheld to avoid disclosing company proprietary data; included with "Undistributed." XX Not applicable.

¹County distribution for construction sand and gravel (1983) and crushed stone (1982) was not available; total State values are shown separately under "Sand and gravel (construction)" or "Stone (crushed)."

²Construction sand and gravel was produced; data not available by county. Total State value is shown separately under "Sand and gravel (construction)."

³Includes some gem stones that cannot be assigned to specific counties and values indicated by symbol W.

⁴Data may not add to totals shown because of independent rounding.

Table 3.—Indicators of Nevada business activity

	1982 ^a	1983	1984 ^b
Employment and labor force, annual average:			
Population	876	897	911
Total civilian labor force	482	486	496
Unemployment	49	48	39
Employment (nonagricultural):			
Mining total ¹	6.6	5.8	6.6
Metal mining	4.2	4.1	4.8
Manufacturing total	18.8	19.1	21.0
Primary metal industries	1.4	1.1	1.1
Stone, clay, and glass products	1.3	1.2	1.4
Chemicals and allied products	.8	.7	.7
Construction	20.0	19.4	22.3
Transportation and public utilities	24.9	24.5	24.8
Wholesale and retail trade	79.9	80.3	86.0
Finance, insurance, real estate	17.9	18.5	20.1
Services	174.8	177.2	187.3
Government and government enterprises	58.2	58.0	59.0
Total	401.1	402.8	427.1
Personal income:			
Total	\$10,474	\$11,074	\$12,132
Per capita	\$11,742	\$12,551	\$13,320
Hours and earnings:			
Total average weekly hours, production workers	37.3	38.8	39.8
Mining	41.2	43.0	42.8
Total average hourly earnings, production workers	\$8.90	\$9.02	\$9.12
Mining	\$11.53	\$12.27	\$12.87
Earnings by industry:			
Farm income			
Nonfarm	\$49	\$50	\$54
Mining total	\$7,754	\$8,203	\$8,963
Metal mining	\$135	\$149	\$176
Nonmetallic minerals except fuels	W	\$101	\$124
Oil and gas extraction	W	\$38	\$39
	W	\$10	\$13

See footnotes at end of table.

Table 3.—Indicators of Nevada business activity —Continued

		1982 ^r	1983	1984 ^p
Earnings by industry—Continued				
Manufacturing total	millions	\$417	\$439	\$503
Primary metal industries	do	\$47	\$36	\$39
Stone, clay, and glass products	do	\$33	\$35	\$41
Chemicals and allied products	do	\$23	\$22	\$22
Petroleum and coal products	do	W	\$2	\$2
Construction	do	\$592	\$581	\$620
Transportation and public utilities	do	\$657	\$709	\$745
Wholesale and retail trade	do	\$1,139	\$1,172	\$1,301
Finance, insurance, real estate	do	\$300	\$339	\$387
Services	do	\$3,138	\$3,338	\$3,700
Government and government enterprises	do	\$1,352	\$1,448	\$1,502
Construction activity:				
Number of private and public residential units authorized		8,319	16,170	13,184
Value of nonresidential construction	millions	\$257.9	\$456.9	\$490.3
Value of State road contract awards	do	\$77.0	\$64.0	\$168.0
Shipments of portland and masonry cement to and within the State	thousand short tons	405	459	503
Nonfuel mineral production value:				
Total crude mineral value	millions	\$532.5	\$612.8	\$615.8
Value per capita		\$608	\$683	\$676

^rRevised. ^pPreliminary. W Withheld to avoid disclosing company proprietary data.¹Bureau of Labor Statistics, U.S. Department of Labor; totals may not add because of inclusion of data from other sources.

Sources: U.S. Department of Commerce, U.S. Department of Labor, Highway and Heavy Construction Magazine, and U.S. Bureau of Mines.

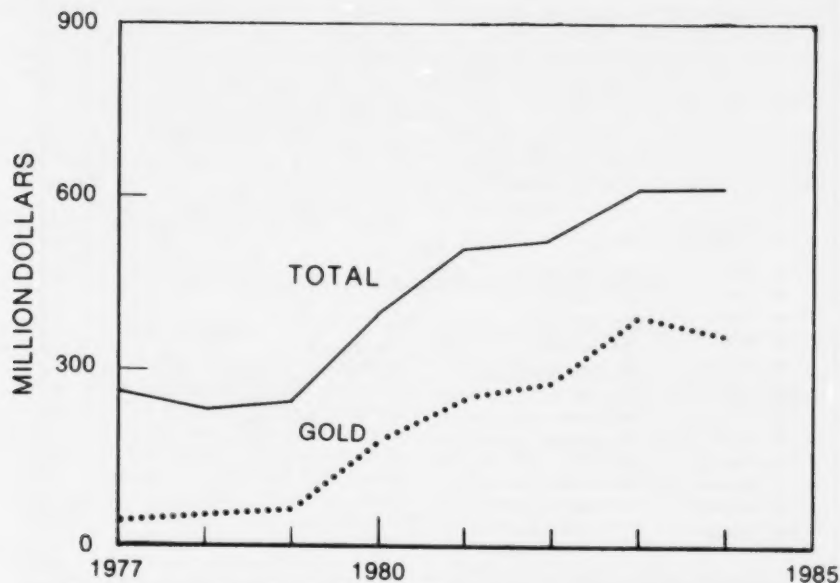


Figure 1.—Value of gold and total value of nonfuel mineral production in Nevada.

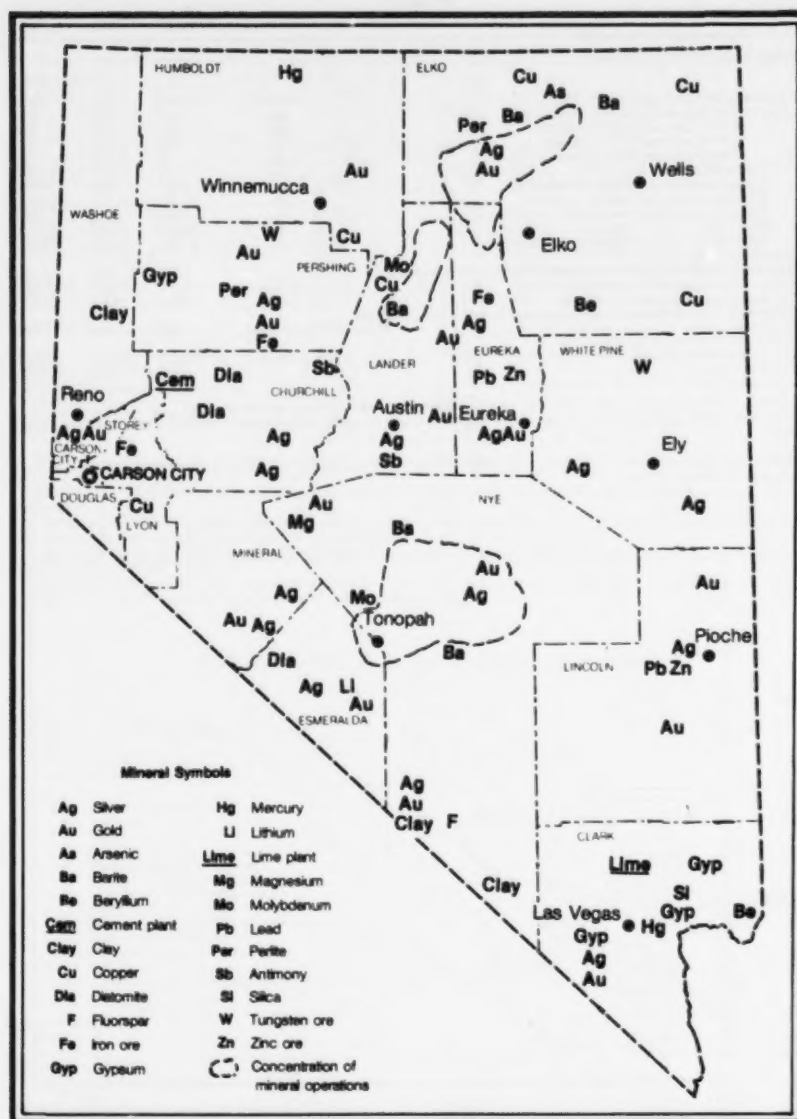


Figure 2.—Principal mineral producing localities in Nevada.

Trends and Developments.—Mineral prices were depressed, and several mines in Nevada suspended operations during the year. Barite mining remained at depressed

levels throughout the year, owing to reduced demand for the commodity by the oil industry and to foreign competition. Lower prices and a lessening of demand also re-

sulted in a nearly complete curtailment of copper and molybdenum mining in the State and the closure of several silver producers at yearend. Gold production continued to be the one bright spot in metal mining in the State. Despite lower prices than in 1983, heap leaching operations at open pit disseminated gold deposits nearly doubled.

Exploration for minerals declined in Nevada during 1984, with continuing layoffs and the closing of exploration offices. An intensive interest in gold deposits continued, however, and exploration for that commodity remained at a relatively high level (for details, see the "Gold" section), despite reductions in exploration efforts for barite, copper, molybdenum, and silver. The U.S. Bureau of Land Management (BLM) reported that more new claims (36,698) were recorded in Nevada in 1984 than in any other Western State.

With the exception of barite, exploration for most other industrial minerals increased as demand for these commodities continued to expand rapidly from the lows experienced in 1982. Industrial minerals that appeared to be most sought after were swelling clays, diatomite, gypsum, limestone, salt, and silica.

Employment.—According to the Nevada Employment Security Department, approximately 6,600 workers were employed in the Nevada mineral industry in 1984. The department reported an annual average of 4,800 employees in metal mining and 1,800 in other mining categories. The annual

payroll for the State's mining industry was approximately \$183 million.

Statistics collected by the Nevada Division of Mine Inspection showed that 6,218 workers were employed in 408 active operations during 1984. The largest number of employees were in the sand and gravel industry and in gold operations.

Legislation and Government Programs.—Two grants were made during 1984 to the Mackay School of Mines, University of Nevada—Reno, for research in the treatment of mineral industry waste for the recovery of critical minerals and metals. The U.S. Bureau of Mines allotted \$150,000 to the Mineral Research Institute and \$773,000 to the Waste Treatment and Recovery Generic Center at the Institute.

The Nevada Economic Development Commission funded a study entitled "A Custom Mill Feasibility Study" to be conducted in Mineral County.

The Nevada Bureau of Mines and Geology published 12 reports and maps on mineral resources during the year and reprinted 4 others. Thirty-one projects were under way at yearend, including geochemical, gravity, and geologic maps; statewide studies of barite, gold, manganese, mercury, and tungsten; and an inventory of mineral occurrences and deposits in several large areas of the State.

Total payments made by the BLM to the State of Nevada as its share of Federal mineral leasing receipts in 1984 amounted to \$8,862,000.

REVIEW BY NONFUEL MINERAL COMMODITIES

METALS

Copper.—Nevada dropped to seventh place in the ranking of copper producing States for 1984. Production was principally byproduct copper from a Pennzoil Co. subsidiary, Duvon Corp.'s Battle Mountain Mine in Lander County, and an Atlantic Richfield Co. subsidiary, The Anaconda Minerals Co.'s Nevada Moly operation in Nye County. Kennecott's copper smelter in White Pine County remained closed during the year owing to a shortage of concentrates for custom smelting.

Gold.—Nevada was the leading gold producing State in the Nation in 1984, with 11 mines among the top 25 producing gold mines in the Nation. Exploration activity was brisk, and several new discoveries and

mine openings were announced during the year.

Freeport Gold Co.'s Enfield Bell (Jerritt Canyon) Mine continued to be the State's largest gold operation. Freeport Gold reported that production was down from the 262,000 troy ounces produced during 1983, but still well above the designed capacity of 200,000 troy ounces. Total ore mined during the year reached a record-high level, and mill throughput rose 11% over that of 1983.

Newmont Mining Corp. began development early in the year of the Gold Quarry gold deposit north of Carlin, in northern Eureka County. Reported reserves of more than 8 million ounces of gold make the deposit the second largest in the State.

AMAX Inc. announced the discovery of a gold-silver ore body at its Sleeper property

in the Awakening (Slumbering Hills) mining district, Humboldt County. Initial planning was announced for a 500-ton-per-day open pit mine to be under way in 1985.

Atlas Corp. announced the discovery of a new gold deposit—the Gold Bar—on the southwest flank of the Roberts Mountains in Eureka County. More than 200 test holes have indicated at least 2.25 million tons of ore averaging 0.09 ounce of gold per ton. Production is planned before the end of 1985.

Lacana Gold Inc. of Reno, a 70% owned subsidiary of Lacana Mining Corp. of Toronto, Ontario, Canada, began operations at the Relief Canyon open pit gold mine 20 miles east of Lovelock, Pershing County. Construction of the gold recovery plant and leach facilities began in June. Leaching began in September, and the first bullion was poured in October. Annual recovery of approximately 24,500 troy ounces of gold was anticipated.

Lacana Gold, together with its joint venture partners including Rayrock Mines Inc., began production at the Dee gold mine, northwest of the Carlin gold mine, in Elko County. The mine is expected to produce about 38,000 troy ounces of gold per year plus an equal amount of silver.

Production also began at Pinson Mining Co.'s Preble deposit northeast of Winnemucca, with an expected annual yield of about 17,000 troy ounces of gold. Earlier in the year, Pinson began testing its new CX Zone, an ore body discovered immediately northeast of the Pinson pit.

Duval began production at its new Fortitude gold and silver mine adjacent to its Battle Mountain Mine in Lander County. When fully operational, the new mine is expected to yield 200,000 troy ounces of gold and more than 250,000 troy ounces of silver per year. Fortitude, discovered in 1981, is considered to be the fifth largest deposit in Nevada.

FMC Corp. announced early in the year the discovery of a major gold-silver deposit at Paradise Peak in northwestern Nye County. The deposit is estimated to contain 1.2 million troy ounces of gold and 43.2 million troy ounces of silver, according to FMC's 1984 annual report. Late in the year, FMC contracted with Davy McKee Corp. for engineering, procurement, and construction

services.

The Standard Slag Co. began production in August at its new Lewis Mine, a 3,500-ton-per-day open pit heap leach gold and silver operation in Humboldt County. It was the first mining project to receive a State authorized loan (\$2 million) to partially finance development—the first industrial development bond for a mining operation in Nevada.

Production was also reported from Tenneco Minerals Co.'s Manhattan Mine, 50 miles northeast of Tonopah; Sunshine Mining Co.'s 16-to-1 Mine near Silver Peak, which processed a record high of 20,840 tons of ore in October; Placer U.S. Inc.'s Bald Mountain Mine in northwestern White Pine County, which produced 3,500 troy ounces of gold from 66,000 tons of ore during 2 months of operation; and Minex Resources Inc.'s heap leach Fire Creek gold mine in Crescent Valley, northern Nye County.

Cominco American Inc.'s open pit Buckhorn Mine in Eureka County started up in June but was shut down in November for modification of the ore handling and crushing equipment. The small heap leach operation utilized a cement agglomeration step to enhance the effectiveness of the leaching process.

Exploration continued at high levels throughout the State. Aurun Mines Ltd. explored the Bluebird property in northwest Lander County. Black Hawk Mine Corp. drilled a property in Goldfield. Nevex Gold Co. conducted exploration at the Haywood-Santiago Mine near Virginia City and began mining operations in the fall. Pacific Silver Corp. explored the old Buckskin Mine in Douglas County. Placer Development Co. Ltd. completed drilling on the summit of Mount Tennabo near the Horse Canyon Mine in Eureka County and also drilled near the Bald Mountain Mine in White Pine County. United States Steel Corp. did exploratory drilling in the Ivanhoe mining district in southwestern Elko County. Westley Mines Ltd. drilled the Atchison gold property in the Santa Fe mining district of Mineral County in a joint venture with Lacana Gold. Coeur d'Alene Mines Corp. explored its Rochester claims east of Oreana in Pershing County. Freeport Minerals Co. explored its Mesona gold property in Elko County.

Table 4.—Nevada: Mine production (recoverable) of gold, silver, copper, lead, and zinc, by county

County	Mines producing ¹		Material sold or treated ² (metric tons)	Gold		Silver	
	Lode	Placer		Troy ounces	Value	Troy ounces	Value
1982, total	45	3	11,541,462	757,099	\$284,601,088	3,142,263	\$24,980,993
1983, total	34	4	¹ 16,283,956	¹ 914,531	¹ 387,761,144	5,163,724	59,073,002
1984:							
Churchill	1	--	200	13	4,689	1,656	13,481
Clark	1	--	W	W	W	W	W
Elko	1	--	W	W	W	W	W
Esmeralda	1	--	W	W	W	W	W
Eureka	4	--	W	W	W	W	W
Humboldt	1	--	W	W	W	W	W
Lander	3	1	W	W	W	W	W
Lincoln	1	--	W	W	W	W	W
Mineral	3	--	W	W	W	W	W
Nye	4	--	11,853,589	192,525	69,435,681	177,265	1,443,054
Pershing	1	--	W	W	W	W	W
Storey	2	--	W	W	W	W	W
White Pine	2	--	W	W	W	W	W
Total	25	1	² 24,243,883	² 997,508	² 359,759,244	² 6,477,032	² 52,727,314
	Copper		Lead		Zinc		Total value
	Metric tons	Value	Metric tons	Value	Metric tons	Value	
1982, total	W	W	W	W	--	--	\$320,640,459
1983, total	W	W	14	\$6,576	--	--	W
1984:							
Churchill	(⁴)	\$26	(⁴)	279	--	--	18,475
Clark	--	--	--	--	--	--	W
Elko	--	--	--	--	--	--	W
Esmeralda	--	--	--	--	--	--	W
Eureka	--	--	--	--	--	--	W
Humboldt	--	--	--	--	--	--	W
Lander	W	W	--	--	--	--	W
Lincoln	--	--	--	--	--	--	W
Mineral	--	--	W	W	--	--	W
Nye	W	W	W	W	--	--	W
Pershing	--	--	--	--	--	--	W
Storey	--	--	--	--	--	--	W
White Pine	--	--	--	--	--	--	W
Total	W	W	W	W	--	--	³ 420,812,256

¹Revised. W Withheld to avoid disclosing company proprietary data.²Operations from which gold and silver are recovered as byproducts from sand and gravel operations and operations from which silver and copper are recovered as byproducts of tungsten ore are not counted as producing mines.³Excludes gravel washed.⁴Includes items indicated by symbol W.⁵Less than 1/2 unit.

Table 5.—Nevada: Mine production (recoverable) of gold, silver, copper, lead, and zinc in 1984, by class of ore or other source material

Source	Number of mines ¹	Material sold or treated ² (metric tons)	Gold (troy ounces)	Silver (troy ounces)	Copper (metric tons)	Lead (metric tons)	Zinc (metric tons)
Lode ore:³							
Dry gold	16	14,350,889	948,505	592,854	--	--	--
Gold-silver	3	W	W	W	--	--	--
Silver	6	2,733,381	17,352	4,589,445	W	W	--
Total	25	W	W	W	W	W	--
Copper	1	W	--	--	W	--	--
Other lode material:							
Gold cleanup	1	W	W	W	--	--	--
Silver tailings	--	W	W	W	--	--	--
Copper precipitates	1	W	--	--	W	--	--
Molybdenum ore	--	W	W	W	W	W	--
Total	2	W	W	W	W	W	--
Total lode	25	*24,243,883	W	*6,477,032	W	W	--
Placer	1	--	W	--	--	--	--
Grand total	26	*24,243,883	*997,508	*6,477,032	W	W	--

W Withheld to avoid disclosing company proprietary data.

¹Detail may not add to totals shown because some mines produce more than one class of material. Operations from which metals were recovered from tailings or as byproducts from molybdenum ore are not counted as producing mines.²Excludes gravel washed.³Includes material that was leached.⁴Includes items indicated by symbol W.

Table 6.—Nevada: Mine production (recoverable) of gold, silver, copper, lead, and zinc in 1984, by type of material processed and method of recovery

Type of material processed and method of recovery	Gold (troy ounces)	Silver (troy ounces)	Copper (metric tons)	Lead (metric tons)	Zinc (metric tons)
Lode:					
Cyanidation	917,107	5,131,084	--	--	--
Acid leaching (vat, tank, heap)	68,397	78,598	--	--	--
Smelting of concentrates	1,356	1,263,334	W	W	--
Direct smelting of:					
Ore	W	W	--	--	--
Precipitates	--	--	W	--	--
Cleanup	W	W	--	--	--
Total lode material	W	*6,477,032	W	W	--
Placer	W	--	--	--	--
Grand total	*997,508	*6,477,032	W	W	--

W Withheld to avoid disclosing company proprietary data.

¹Includes items indicated by symbol W.

Iron Ore.—Nevada ranked seventh in 1984 among the 10 States that reported shipments of usable iron ore. Quantity and value rose 43% and 47%, respectively, from that reported in 1983. Three producers shipped iron ore in 1984 from Eureka, Churchill, and Pershing Counties. Nevada-Barth Corp.'s Eureka County operation was the State's largest shipper.

Lead.—Small amounts of lead were recovered during the year as byproducts of gold and silver production from Churchill and Mineral Counties. Byproduct lead was also reported from Anaconda Minerals' Nevada Moly operation in Nye County.

Mercury.—Nevada accounted for all of the mercury production reported in the Nation during 1984. The McDermitt Mine in Humboldt County, operated by Placer U.S., was the principal producer. Production was 19,048 76-pound flasks, or about 24% less than that of 1983. Smaller amounts of mercury were also produced as a byproduct from gold mining residues at the Carlin and Pinson Mines.

Molybdenum.—Nevada's molybdenum production was restricted to operations at Anaconda Minerals' Nevada Moly operations near Tonopah. Kennecott's Ely and McGill operations in White Pine County

remained closed during the year. Exxon Minerals Co. continued with development plans for its Mount Hope molybdenum project in Eureka County, but stretched out plans for completion owing to unfavorable market conditions.

Silver.—Nevada ranked second among the Nation's silver producers in 1984. Production of nearly 6.5 million troy ounces of silver was 25% more than that of 1983, although value decreased to \$52.7 million owing to lower prices during the year.

NERCO Minerals Co. announced the acquisition of a 50% nonoperating interest in the Taylor silver mine in White Pine County. The mine will be a joint venture between NERCO and Silver King Mines Inc. with Silver King continuing as mine operator.

In October, Asamera Minerals (U.S.) Inc. reached full production capacity of 350 tons per day at the Gooseberry underground silver-gold mine in Storey County. Pacific Silver continued exploration at the Buckskin Mine in Douglas County.

Mount Hope Mining Corp. reopened the Lucky Boy Mine near Hawthorne for silver exploration. The Wonder Mine near Fallon began shipments in April. Belmont Resources Inc. began silver leaching operations at its Silver Center Mine east of Fallon. MNR Reprocessing Inc., Toronto, Ontario, Canada, operated a plant north of Tonopah to reprocess tailings from an old silver mine; the plant was shut down late in the year because of declining silver prices.

Titanium.—Titanium Metals Corp. of America (TMCA) produced titanium metal sponge and ingot from imported rutile concentrate at its Henderson plant. TMCA is the largest U.S. titanium metal producer with an annual capacity of about 15,000 tons of sponge and 17,000 tons of ingot.

Tungsten.—Most Nevada tungsten operations were closed during 1984. These included the Emerson Mine and mill of Union Carbide Corp. at Tempiute in Lincoln County, and General Electric Co.'s Springer Mine, mill, and ammonium paratungstate plant in Pershing County. The Geo-A tungsten mine near Wells in Elko County shipped concentrates to the Umetco Minerals Co. plant in California.

NONMETALS

Barite.—Nevada continued to be the Nation's leading producer of primary barite despite a 7% decrease to 615,000 short tons in 1984. The continuing downturn in oil well drilling left many Nevada barite pro-

ducers with excess inventories. Cutbacks in domestic mine production and grinding plant activities still persisted throughout the State.

Dresser Industries Inc., Magobar Minerals Div.'s Greystone Mine and mill in Lander County, and NL Industries Inc., Baroid Div.'s Queen Lode and Sage Hen Mines in Elko County were the largest producers. Additional production was reported from six mines in Lander County and two mines in Nye County. Circle A Mining Co. constructed a jig plant north of Wells and began production at midyear. Eisenmann Chemical Co., a subsidiary of Newpark Resources Inc., reopened its Lakes Mountain jig plant for a 3-month period.

Nevada continued to produce about 80% of the total U.S. output of barite. A comprehensive report on Nevada barite (Bulletin 98) was published by the Nevada Bureau of Mines and Geology in 1984.

Cement.—Nevada Cement Co. continued to produce from a plant near Fernley in Lyon County, utilizing freshwater limestone mined nearby and clay mined in central Washoe County. Nevada Cement operates the only cement plant in Nevada. The company began operation of a 45- to 48-car cement unit train between its plant at Fernley and its distribution terminal near Sacramento, CA, in February.

Clays.—The largest producer of Nevada clays, Industrial Mineral Ventures Inc., mined and processed sepiolite and bentonite in southern Nye County. Hectorite from California and bentonite from Wyoming were also processed at the plant to make high-value organoclad clays.

Diatomite.—Three companies produced diatomite from Miocene or Pliocene freshwater lake deposits. Eagle-Picher Industries Inc. was the State's largest producer from properties in Lyon, Pershing, and Storey Counties. Grefco Inc. in Esmeralda County and Cyprus Diatomite Co. in Churchill County also produced diatomite during the year, resulting in Nevada again becoming the second largest diatomite producing State in 1984.

Fluorspar.—Metallurgical-grade fluorspar from the Daisy Mine in Nye County was shipped to steel plant in California.

Gem Stones.—An estimated \$1.3 million value of gem stones was produced. Turquoise and opals were the most sought after gems.

Gypsum.—Continuing improvements in building and construction activities in the

West resulted in an increase in Nevada's gypsum production for the second year. Crude gypsum mined increased 19% to 1.2 million short tons, and calcined gypsum produced increased 16% to 779,000 short tons. Production was reported from four companies in Clark, Lyon, and Pershing Counties.

Lime.—Genstar Lime Co. mined carbonate rocks at three locations in Clark County—dolomite at Sloan, and limestone at Apex and Henderson. A deposit of dolomite near the Apex plant was being explored late in the year.

Marblehead Lime Co. opened a large limestone mine near Pilot Sighting in eastern Elko County. The crushed rock was hauled by truck to the company's lime plant in Utah.

Lithium Compounds.—Foote Mineral Co., a subsidiary of Newmont Mining, was the State's sole producer of lithium compounds, which were recovered from brines in Esmeralda County. Lithium carbonate was produced by solar evaporation and chemical processing of lithium-rich brines pumped from beneath the Silver Peak dry lake.

Magnesite.—Basic Inc.'s magnesite operation at Gabbs in Nye County continued to operate at a low and intermittent level. It remained the only magnesite producer in the United States, with output and value slightly below that of 1983. The material was used in refractories, in steel, and to make magnesium oxide.

Perlite.—Nevada's perlite production in

1984 came solely from the United States Gypsum Co., which sold expanded perlite from its Empire plant in Washoe County.

Salt.—The Huck Salt Co. operation in Churchill County, owned by Leslie Salt Co., was the only reported 1984 salt producer in the State.

Sand and Gravel.—**Construction.**—Construction sand and gravel production is surveyed by the U.S. Bureau of Mines for even-numbered years only; therefore, this chapter contains only estimates for 1983. The data for odd-numbered years are based on annual company estimates made before yearend.

Sand and gravel for construction, used primarily in concrete aggregate, asphaltic concrete, road base and coverings, and as fill, increased 36% in quantity produced and 75% in value from that of 1982, the last year in which surveys were conducted. Production in 1984 was reported from 62 operations throughout the State, with 3 companies reporting more than 600,000 short tons and 17 companies reporting less than 25,000 short tons. The major portion of the production was from Clark and Washoe Counties. Douglas, Elko, and Lyon Counties also had production of more than 300,000 short tons.

Industrial.—Simplot Industries Inc.'s Silica Products Div.'s plant in Clark County was the only reported producer of industrial sand during 1984. Silica sand was used for containers, flux, molding, and silicon carbide production. Production in 1984 decreased 45% and value decreased 3% from that reported in 1982.

Table 7.—Nevada: Construction sand and gravel sold or used in 1984, by major use category

Use	Quantity (thousand short tons)	Value (thou- sands)	Value per ton
Concrete aggregate	1,378	\$3,951	\$2.87
Plaster and gunite sands	43	138	3.24
Concrete products	249	1,183	4.76
Asphaltic concrete	1,375	2,774	2.02
Road base and coverings	1,550	3,618	2.33
Fill	291	755	2.60
Snow and ice control	78	229	2.93
Other ¹	3,239	7,858	2.43
Total ² or average	8,202	20,505	2.50

¹Includes other unspecified uses.

²Data may not add to totals shown because of independent rounding.

Stone.—Stone production is surveyed by the U.S. Bureau of Mines for odd-numbered years only; therefore, this chapter contains only estimates for 1984. Data for even-numbered years are based on annual com-

pany estimates made before yearend.

¹State Mineral Officer, Bureau of Mines, Reno, NV.

²Director and State geologist, Nevada Bureau of Mines and Geology, Reno, NV.

Table 8.—Principal producers

Commodity and company	Address	Type of activity	County
Barite:			
Dresser Industries Inc., Magobar Minerals Div.	Box 370 Battle Mountain, NV 89620	Surface mine and mill	Lander.
NL Industries Inc., Baroid Div.	Box 414 Battle Mountain, NV 89820	...do.....	Elko.
Cement:			
Centex Corp., Nevada Cement Co.	Box 840 Fernley, NV 89408	Plant.....	Lyon.
Clays:			
Industrial Mineral Ventures Inc.	1800 East Sahara Ave. Suite 107 Las Vegas, NV 89104	Surface mine and mill	Nye.
Copper:			
The Anaconda Minerals Co.	Box 1268 Tonopah, NV 89049	...do.....	Do.
Duval Corp.	Box 451 Battle Mountain, NV 89820	...do.....	Lander.
Diatomite:			
Eagle-Picher Industries Inc., Minerals Div.	Box 12130 Reno, NV 89610	Surface mine and plants.	Lyon, Pershing.
Grefco Inc., Dicolite Div.	Box 288 Mina, NV 89422	Surface mine and plant	Storey, Esmeralda.
Fluorspar:			
J. Irving Crowell, Jr., & Son.	Box 96 Beatty, NV 89003	Underground mine ..	Nye.
Gold:			
Carlin Gold Mining Co., a subsidiary of Newmont Mining Corp.	Box 979 Carlin, NV 89822	Surface mine, mill, refinery.	Eureka.
Copper Range Co., Smokey Valley Mining Div.	Box 480 Round Mountain, NV 89045	...do.....	Nye.
Freeport Gold Co., Joint Venture	Mountain City Star Route Elko, NV 89801	Surface mine and mill	Elko.
Gypsum:			
Genstar Building Products Co.	Box 2580 Irving, TX 75061	Surface mine and plant	Clark.
Pacific Coast Bldg. Products Inc.	Box 465 37851 Cherry St. Newark, CA 94560	...do.....	Do.
United States Gypsum Co.	101 South Wacker Dr. Chicago, IL 60606	...do.....	Pershing.
Iron Ore:			
Nevada-Barth Corp., Barth Div.	Box 425 Carlin, NV 89822	...do.....	Eureka.
Lime:			
Genstar Lime Co.	215 Market St., Suite 1000 San Francisco, CA 94105	...do.....	Clark.
Lithium compounds:			
Foote Mineral Co.	Route 100 Exton, PA 19341	Dry lake brines and plant.	Esmeralda.
Magnesite:			
Basic Inc.	845 Hanna Bldg. Cleveland, OH 44115	Surface mine and mill	Nye.
Mercury:			
Placer U.S. Inc., McDermitt Joint Venture.	Box 497 McDermitt, NV 89421	...do.....	Humboldt.
Molybdenum:			
The Anaconda Minerals Co.	Box 1268 Tonopah, NV 89049	...do.....	Nye.
Perlite:			
United States Gypsum Co.	Empire, NV 89405.....	Plant.....	Washoe.
Salt:			
Leslie Salt Co., Huck Salt Co.	895 Harrigan Rd. Fallon, NV 89406	Solar evaporation plant.	Churchill.
Sand and gravel (construction):			
ARC Materials Corp., WMK Transit Mix.	Box 14697 Las Vegas, NV 89114	Pits and mills.....	Clark.
Robert L. Helms Construction Co.	Drawer 606 Sparks, NV 89432-0606	Pits and mill	Lander and Washoe.
Industrial Construction Inc., Bonanza Materials Inc.	565 Lalif Rd. Henderson, NV 89015	Pit and plant	Clark.
Las Vegas Building Materials Inc.	Box 530 Las Vegas, NV 89101	Pit	Do.
Las Vegas Paving Corp.	1770 South Industrial Rd. Las Vegas, NV 89102	Pit	Do.
Rilite Aggregate Co. Inc.	Box 11767 Reno, NV 89610	Pit and mill	Washoe.
Southern Nevada Paving Inc.	3555 Polaris Ave. Las Vegas, NV 89103	Pits and mill	Clark.
Stewart Bros. Co.	Box 42755 Las Vegas, NV 89116	Pit and mill	Do.
Wells Cargo Inc.	Box 14037 Las Vegas, NV 89114	...do.....	Do.

Table 8.—Principal producers —Continued

Commodity and company	Address	Type of activity	County
Silver:			
NERCO Minerals Co.-----	Box 1246 Hawthorne, NV 89415	Surface mine and plant	Mineral.
Silver King Mines Inc.-----	Box 324 East Ely, NV 89315	-----do-----	White Pine.
Sunshine Mining Co.-----	Box 97 Silverpeak, NV 89047	Underground mine and mill.	Esmeralda.
Stone (1983):			
Centex Corp., Nevada Cement Co.---	Box 840 Fernley, NV 89408	Quarry-----	Lyon.
Genstar Lime Co.-----	901 Mariner's Blvd. Suite 425 San Mateo, CA 94404	Quarries-----	Clark.
Glass Mountain Block Inc.-----	355 Gregg St. Sparks, NV 89431	Quarry-----	Storey.